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HOW FREE ARE THE SKYWAYS?

Prepared for
THE UNITED STATES ARMED FORCES
by

THE AMERICAN HISTORICAL ASSOCIATION

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WAR DEPARTMENT
WASHINGTON 25, D. C., 28 Dec 1945
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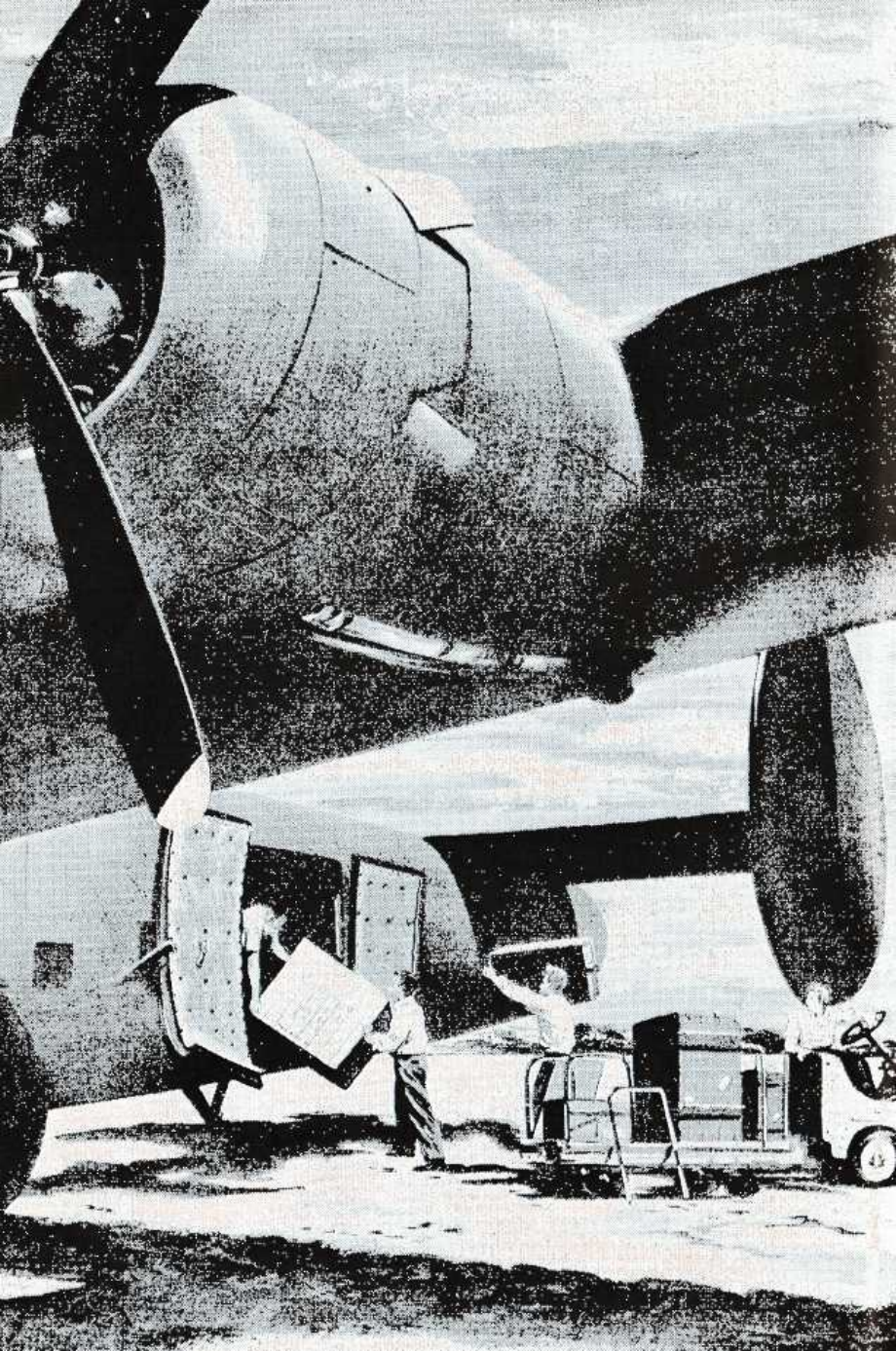
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HOW FREE ARE THE SKYWAYS?



WHY IS *Freedom of the Air* A PEACETIME PROBLEM?

ALMOST A CENTURY AGO a prophetic poet foresaw "the heavens filled with commerce." His name was Alfred Lord Tennyson.

Today passenger and cargo transport planes by the thousands roar through the skies. It begins to look as though Tennyson was right. During the war these planes went mostly on military errands and could cross friendly frontiers without explicit and individual permission. The question remains to be answered, however: Will even more commerce fill the skies of peace?

In their wartime service, transport planes could go farther at greater speeds across more arduous routes carrying heavier cargoes than they ever could before.

In the African jungle, planes on regular runs were almost as common as lions. Twenty planes an hour crossed the high Himalayas through fierce storms and between the jagged peaks of the Shangri-la country. Planes flew from New York to London between supper one day and lunch the next. Daily they rode the airways above the iceberg lanes of the North Atlantic.

Those are impressive accomplishments. But is the golden age of aviation truly upon us? Or will the plane, because peace has come again, be a modern chained giant?

Closing the skies

For a number of reasons air commerce did not come into its own before the war.

In the first place there was the technological hazard. Men still had a long way to go in overcoming the problems of weather and of mechanical imperfection in planes and motors.

In the second place an economic hazard stood in the way. Despite its speed, air travel always failed in the past to attract enough passengers and freight to make wide-scale operation profitable. The airlines grew as a result of state subsidies. Pan American World Airways (formerly Pan American Airways), the great international line which has its headquarters in the United States, got its impetus from Post Office Department subsidies for carrying air mail.

In the third place a political hazard has postponed the arrival of the air age.

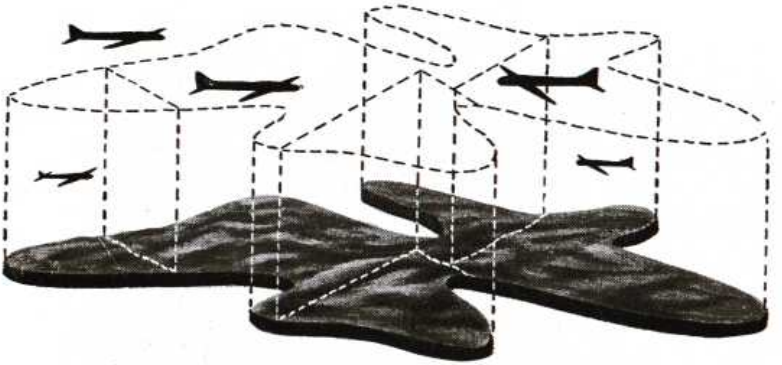
The first hazard faded to all but a memory during the war as intercontinental flying became an everyday reality. It is possible that enough peacetime air traffic will now develop to erase the second. But the third one continues to loom as the greatest barrier that must be brought down before Tennyson's prophecy can come true.

Does anybody own the air?

A few years ago a song writer told us: "The skies belong to everyone." But he didn't know his international politics.



Twenty planes an hour over the Hump



Boundaries in the sky

As a matter of fact, each country claims exclusive control or "sovereignty" over sky above its territory. If you could hang boundary markers in the clouds, you would find that the upper air is cut up into as many political divisions as the face of the earth itself.

In that fact lies one of the problems of the future of international flying. Every country has been insisting on the right to decide whose planes may fly over its territory. At the same time almost every country has a plan for establishing commercial airline routes through the air above some other country.

Will all nations hold to these contradictory aims of expanding their own use of the air while restricting the use other nations can make of it? If they do, the result might be either the establishment of even higher walls that would cut off aerial intercourse between all countries or an outburst of conflict that would obtain air advantages for only a few of the nations of the world.

Can the nations reach a common understanding that will free the air from most of the political barriers? What sort of understanding would make possible the maximum use of aviation knowledge and equipment developed during and before the war?

What is our stake?

The future of air commerce involves questions that profoundly affect the foreign affairs of the United States. Rich in planes and aviation engineering skill, America can look forward to an era of intercontinental flying that will put South America, Europe, Africa, Australia, and Asia just around the corner from the forty-eight states.

The settlement of international air problems can help bind the various countries of the world more closely together—politically as well as commercially. Or the settlement can keep the world divided. Let us see how international aviation has progressed in the past and examine the schemes put forward to improve its prospects for the future.

The international air pioneers

The history of international commercial aviation falls neatly into two periods: (1) the pioneer era before World War II, and (2) the wartime era of great expansion.

International aviation began with the commercial conquest of a modest distance, the 200 miles between London and Paris. The line was opened in the summer of 1919, shortly after World War I gave to aviation its first great impetus. The journey took two hours, but it saved the passengers the agony of crossing the stomach-tossing Straits of Dover via surface ship.

From 1919 to 1939 was the pioneering age in international flying. Airlines expanded to a total of more than 300,000 route miles. The North Atlantic, South Atlantic, and Pacific oceans were spanned. Networks were laid over Europe, North America, South America. Europe was linked with the Far East and Australia. A number of routes were opened in Africa, no more the secluded Dark Continent.

Airmen complain, however, that those advances of the pioneer era were but a small portion of what might have been done had the nations of the world understood the great im-

portance of the airplane. The world seemed to fear the plane more than appreciate it. Two fears especially held the commercial airplane on a leash during the international pioneering age.

The plane as an instrument of aggression

The strongest fear was military, the fear that foreign airlines might use their planes for aggression. This fear has made governments hesitant to let planes fly into the air they control. It led the French government a few years before the war to propose a limitation on the size of planes operating internationally.

"The military aspect of aviation cannot fundamentally be separated from the civil aspect," a report of the British government said in 1938. For the most part, civil planes are not easily converted to combat uses, any more than a superliner becomes a battleship easily; conversely the military planes used in World War II have little peacetime commercial worth.

Nevertheless, international commercial flying does give pilots practice in long-distance operation that is usable in flying bombers and troop transport planes or in instructing others how to fly them. International flying makes possible the mapping of foreign areas that might later become bomb targets or paratroop objectives.

Development of international routes and production of the planes needed to fly them can lay the foundation for an industry devoted to the manufacture of large planes—civilian planes in peace, combat planes in war. Germany consistently took advantage of its international commercial flying for politico-military purposes.

The economic fear

The second strangling fear was economic, growing out of the fact that planes have been able in the past to attract only a small percentage of the persons and freight in motion from one point on the earth's surface to another.

This fear has led some countries to impose restrictions on the regularly scheduled planes of other countries lest a few nations obtain a lion's share of the total business. And it has led some countries to exploit their geographical locations by exacting a price—often a stiff one—for allowing the planes of other nations to fly over their territory.

HOW SERIOUS ARE THE OBSTACLES TO FREEDOM?

WHEN THE WILD GEESE who have spent the summer in northern Sweden get the autumn urge to fly south, they head for the Mediterranean and cross the boundaries of a number of countries without any permission from a mortal agency like a government bureau. Not so in prewar days with commercial airplanes carrying passengers, mails, and freight over regularly scheduled routes.

Before World War II, governments made some progress through the tedious business of reaching individual agreements with a large number of other countries. By trading off privileges and by making special financial arrangements, governments gradually got for regular commercial planes some of—but far from all—the freedom of the wild goose.

Except through this process of special negotiation—and sometimes in the process—nations have hesitated to grant foreign planes the privileges of flying over their territory, of landing to refuel or make repairs, or of landing to discharge or take on passengers and freight.

These privileges have lately been divided into five classes, so it may be easier to discuss the underlying issues in similar divisions.

Freedom of transit

The first is the matter of flying across the territory of other nations. This is the so-called "right of innocent passage."

If two states are separated by the territory of a third state, they cannot enjoy mutual air commerce unless their planes can fly over the intervening territory. Countries which lie across straight airline routes can thus use their position for great good or ill to international aerial transportation.

The greatest obstacle to freely granted privileges of transit through the air of one country by the planes of another has been the strategic consideration. Nations do not relish the idea of permitting the planes of other nations to fly unhindered and unquestioned over their territory. Rivalry among colonial powers has been another barrier. Until Great Britain, France, and Belgium reached agreement on lines to their African colonies, each stood in the others' way. And the spirit of competition for aerial traffic has moved nations to bar transit over their territory until they were ready to engage in the business themselves.

Operational stops

The second privilege is that of landing for nontraffic purposes, that is, to refuel, make repairs, seek haven from bad weather, and the like. This is important particularly for transocean hops. On these routes nations possessing islands that are essential for intercontinental flying are in the saddle. For instance, at the present time flights across the North Atlantic, to be profitable, must have access to land in Newfoundland, Iceland, Bermuda, or the Azores.

The United States, of course, has complete control of Pacific flying through possession of Hawaii, a key station on the middle Pacific route, and Alaska, the gateway from North America to Siberia. Before the war, the United States, with an eye to possible Japanese operations, declined to admit foreign planes either to Hawaii or the Philippines. That was the reason Australia, which wanted the right to fly a route via Hawaii to Canada, declined to let Pan American Airways extend its service from New Zealand to Australia.

673402°—46—2

International rivalries and fears slowed up the progress of European air routes to the Orient until hard bargains about bases were struck. Italy, for instance, agreed to let Imperial Airways (Britain) fly to Egypt by way of an Italian base only in return for British permission for an Italian line to fly to Iraq via Palestine, a British mandate. Turkey unrelentingly closed its air to commercial planes bound for the Orient.

Oceanic and land bases are still important even though the range of modern planes enables them to cross great bodies of water in one jump. A plane which has the privilege of crossing the Atlantic in two jumps, refueling at a way base, needs to carry less gasoline than does the one-hop plane. That means it can carry more paying passengers and freight.

Stopping to do business

Third is the privilege of landing to discharge passengers, mail, or cargo taken on in the country whose nationality the aircraft possesses, that is, under whose flag it flies.

The related privilege of taking on passengers, mail, or cargo destined for the country whose nationality the plane possesses is the fourth privilege.

Jealous bargaining over privileges three and four has slowed down the development of international routes. Governments have required that their airlines be given reciprocal privileges in a second country when the airlines of that country seek admission to the first country.

Sometimes country A not only has sought reciprocal privileges but has stipulated that country B cannot begin operations until country A is ready to run a competing route to country B. For instance, the United States had a reciprocal agreement with Britain respecting the crossing of the Atlantic. When Pan American Airways was ready to begin flights to Britain before the war, however, the British were not ready to begin flights to the United States and a special permit was needed to let Pan American start.

The twenty Latin-American countries, not being in a position to engage in competitive operations, generally have not demanded reciprocity, and airway development has progressed rapidly in them. Neither, of course, do the forty-eight states in our country demand reciprocal privileges of each other.

In 1932 American lines flew their transport planes an average of 87,500 miles each, while European lines flew theirs an average of 22,100 through the blocked skies of that continent. In 1942 American domestic airlines averaged 464,000 miles per plane.

Some persons credit this American advantage to the free sky lanes between the states. Others attribute it to the facts that Americans on the whole live on a higher economic level than Europeans and that commercial flying within the United States has been technologically superior to that within Europe. Perhaps it is just that distances are much greater.

Picking up business en route

The fifth and final privilege is that of carrying passengers, mail, and cargo between intermediate countries on a route—neither country being that whose nationality the aircraft possesses. This is important for intercontinental flying. As long as this privilege is restricted, an aircraft flying outbound on a long route with stops in several countries must fly with a constantly growing number of empty seats.

"For example," a State Department official says, "a plane from New York to Cairo via London, Paris, Geneva, and Rome would drop off at each city the passengers booked to that point and take on none, thus probably arriving at Cairo with perhaps two or three seats occupied. Between New York and Buenos Aires, for instance, only 15 percent of the traffic is through traffic, and therefore we should be able to operate only about one plane a week on that trade route. Such a restriction would strangle the lines of every country except those operated for political reasons with heavy government subsidies."

The fifth privilege tends also to be restricted by the fact that most countries reserve to their own lines right to what is known as cabotage. This is the carrying of passengers or freight between two points within the territory of one country. As long as cabotage is reserved, a foreign airline coming from across the Atlantic to the interior of the United States, for instance, cannot pick up passengers in New York and take them on to Chicago. Some countries interpret cabotage to cover operations between a country and its colonies in other continents.

Prewar cooperation

In attempts to reduce the barriers to enjoyment of these five privileges, the nations have sought in the past to make international agreements that included many countries. The most important pacts were made at Paris in 1919—which the United States signed but never ratified—and at Havana in 1928 among the American Republics. Only the United States and ten other nations have ratified the latter.

The Paris and Havana conferences failed to establish any of the five privileges as an international reality. But they did provide a simplified basis by which individual countries could make air agreements with other individual countries. International cooperation in the air was extended as a result of the Paris convention.

Some governments made what are known as pooling arrangements—by which the lines of two countries split the profits and deficits from operating one route together. This scheme divided the economic risk.

France and Germany had a pooling arrangement for their services from Europe to South America. In the intricate network of lines within Europe pooling was common.

The prewar routes

Despite restrictions on its freedom of flight, the airplane forced its way around the world during the pioneering era.

Pan American Airways was the pioneer United States international line. It began operations in 1927 with a line from Miami to Havana that, among other things, exploited people's thirst for a drink when the Prohibition Amendment was in force in the United States.

When war came on December 7, 1941, the United States was operating 98,000 route miles of *international* airways; this country's route mileage was the world's longest. Here are the 1938 airway mileages, international *and domestic*, of other leading aviation countries:

The Soviet Union, 58,036 miles, almost entirely for domestic flight; France, 40,833; Germany, 32,720; United Kingdom, 29,064; Italy, 23,583; Australia, 21,748; the Netherlands, 16,055; Canada, 11,917; Belgium, 11,388; Mexico, 10,104; Brazil, 9,182; Japan, 8,694; Netherlands East Indies, 7,943; South Africa, 7,893; Colombia, 4,844; India, 4,122; Poland, 3,744; Argentina, 1,581.

Air commerce during the war

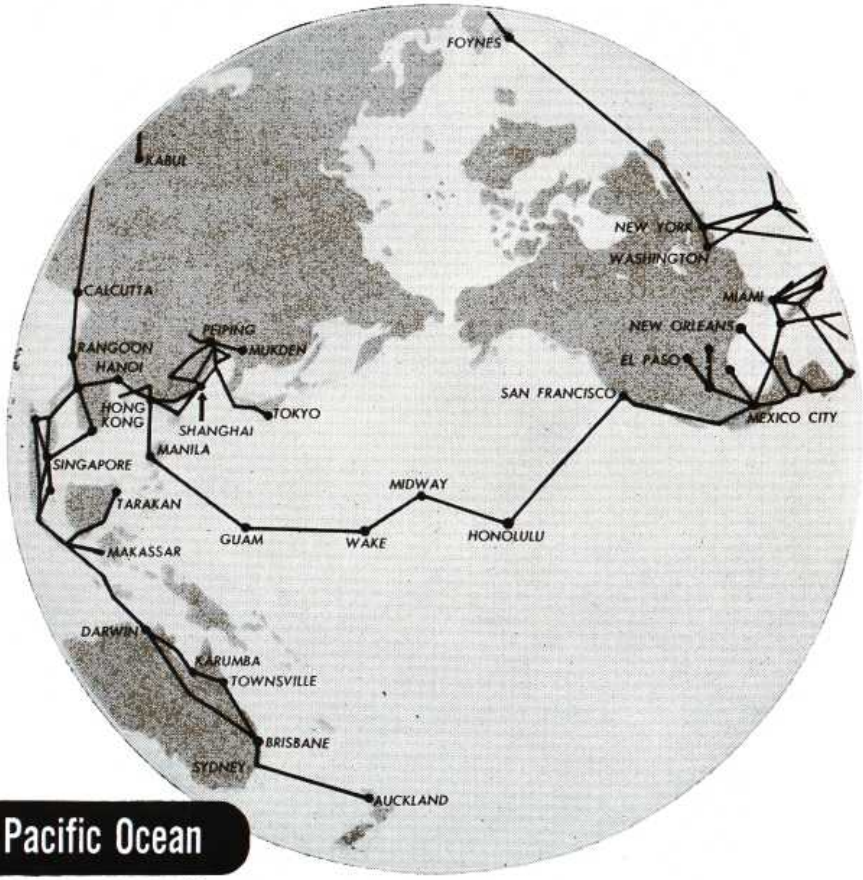
The second World War had a curious effect on international flying. The world's air was rent in two, part of it controlled by the Axis, part by the United Nations. Antiaircraft barriers between the two parts were more formidable than any of the barriers that discouraged the development of flying between countries and continents before the war. Only combat planes or troop-carrying planes protected by combat planes traveled from one air region to the other.

Yet in each of the two divisions of the world, the air was freer than it ever had been in the past. Within them planes could move almost without hindrance from one section to another.

This change came from urgent necessity. The conduct of the war required that men and supplies be moved quickly over long distances. To meet their military requirements the United Nations developed one set of international routes, and

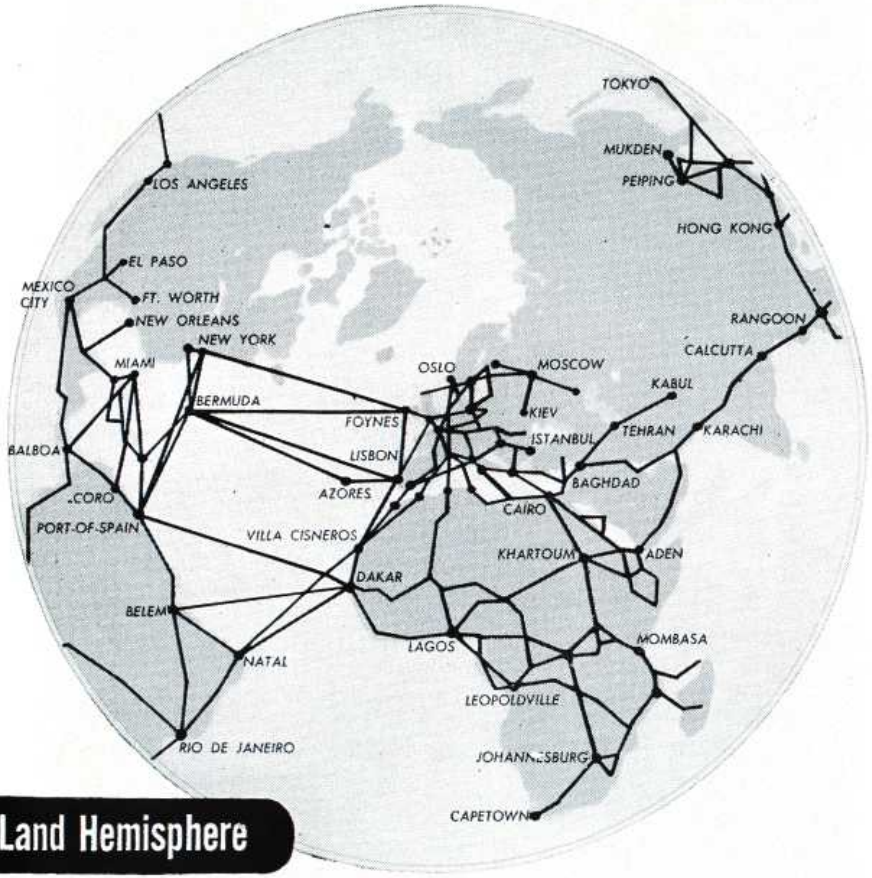
PREWAR INTERNATIONAL

More than 400,000 airway miles in December 1941



Azimuthal equidistant projection centered at 40° N, 175° W

AIR ROUTES



Land Hemisphere

Azimuthal equidistant projection centered at 48° N, 0° longitude

the Axis developed another set—or rather two sets, because the region controlled by Germany and Italy was far removed from the region controlled by Japan.

Neutral airlines provided a wartime link between the air worlds of the United Nations and of Germany. Throughout the war, planes flew with variable regularity from Stockholm to Aberdeen and from Stockholm to Berlin.

Wartime mileage increases

The war brought a marked increase in the total mileage of international air routes. This happened even though the Germans had to give up their Oriental and transatlantic lines, the Italians were forced to abandon their European and intercontinental lines, the Netherlands suspended its route to the Orient, and the French lines gave up their South Atlantic crossing and their flights to the Far East.

In their place, the British Overseas Airways Corporation (BOAC, successor to both Imperial Airways and British Airways) developed an extensive transatlantic service. With the assistance of the Belgian Sabena lines, it increased the number of its African lines while maintaining operations to India. Its wartime routes totaled 70,000 miles. The Dutch KLM line opened a network of operations in the Caribbean Sea region, with a United States link at Miami. The French inaugurated special military lines in Africa.

ATC and NATS

Most extensive of all were the new routes operated by the United States, under the control of the Army and the Navy. The Naval Air Transport Service, created on December 12, 1941, had a network of 80,000 miles, and the Air Transport Command of the Army Air Forces, organized on May 29, 1941 as the Ferrying Command, operated more than 160,000 miles. ATC was the longest airline in the world. It kept pace as the front advanced farther into enemy territory. Within a month after the liberation of Paris, ATC planes included Paris on

their schedules. Soon they were flying to Brussels. Within a month of its invasion, Leyte became an ATC port of call.

The speeds maintained, the distances covered, the trying terrain conquered, the foul weather outwitted, and the great variety of cargo carried by ATC and NATS altogether testify that man is winning the technological battle against the air.

But the question still remains whether the economic and political hazards can be overcome. ATC and NATS, as military lines, paid little heed to questions of financial efficiency.

ATC ran the biggest hotel chain in the world. It dished out more meals a day than any other transport enterprise in history. NATS and ATC together carried about 45,000 passengers a month. Their pilots buzzed the back yard of Santa Claus and braved the rainy season thundershowers of the equator.

The accompanying maps reveal some of the NATS and ATC routings. In the operations of these wartime lines, perhaps, we see the shape of the future.

CAN THE OBSTACLES BE REMOVED?

DOES THE END of the war mean the end of the two fears that held back the development of international flying before the war? Will the strangling restrictions go?

If the world can answer "yes" to those questions, then the golden age that the poet Tennyson envisioned may truly dawn.

If this new air age comes about, how will it look?

More routes planned

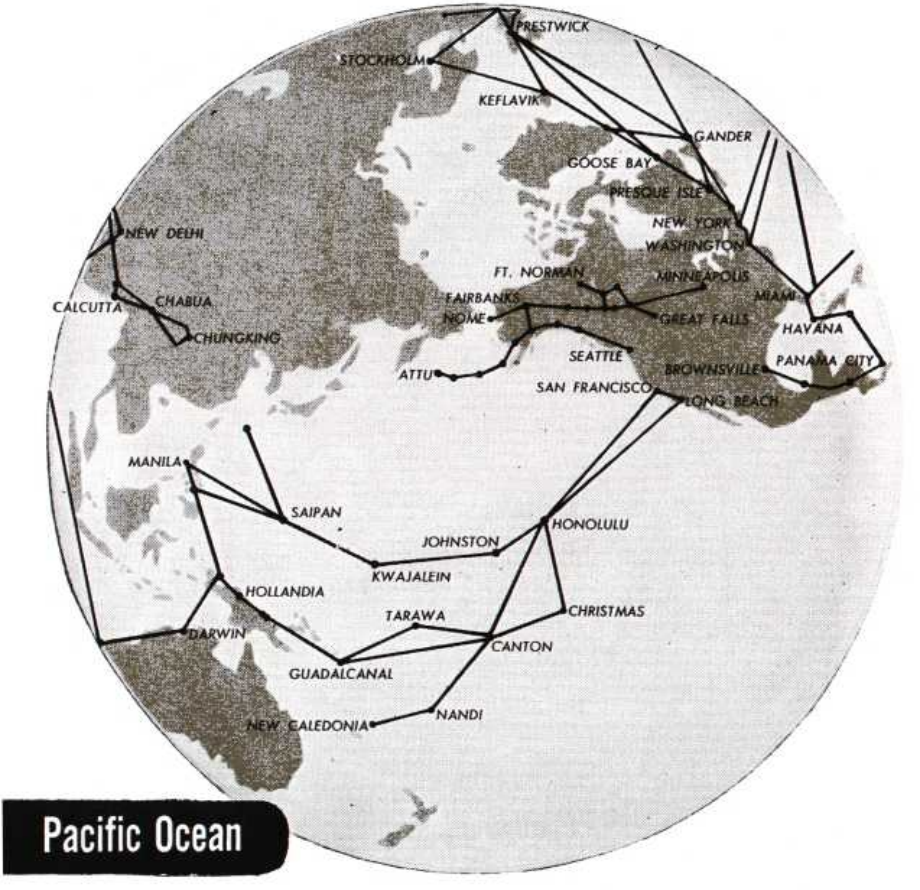
Perhaps transoceanic planes no longer will halt at the coastal fringes of continents as they did before the war. They may start their runs as far inland as Chicago and end them as far inland as Moscow.

New intercontinental links are planned. A person will be able to travel directly from North America to Africa, or to Asia by way of northern Europe.

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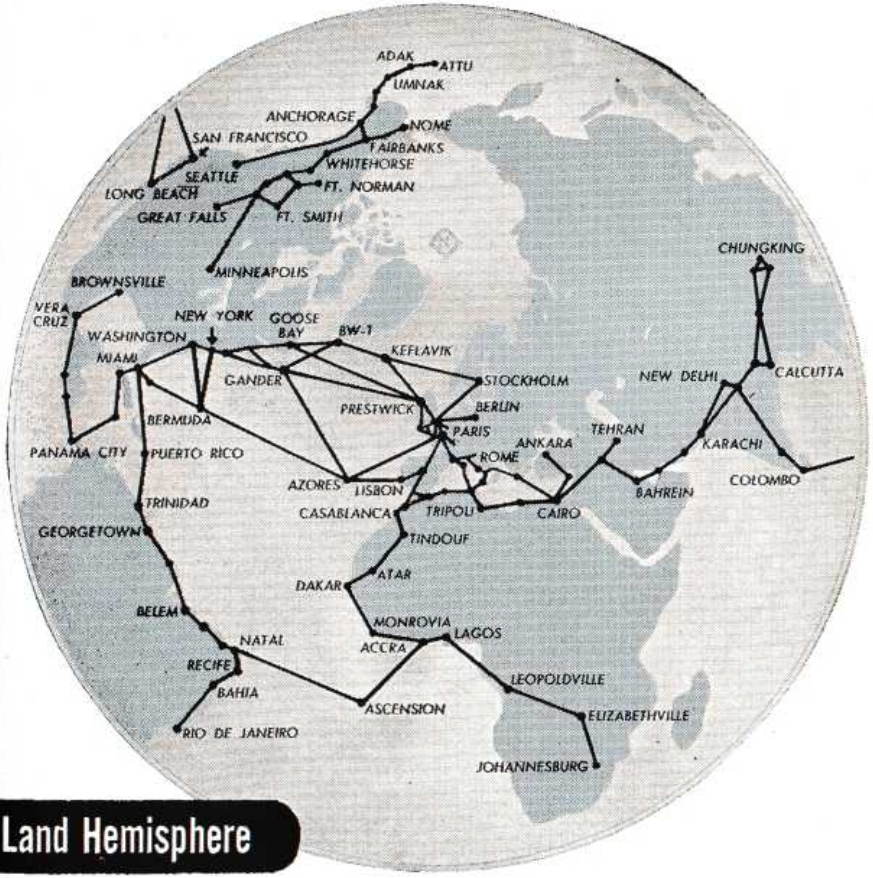
AIR TRANSPORT COMMAND

Network of 160,000 airway miles in June 1945



Azimuthal equidistant projection centered at 40° N, 175° W

ROUTES

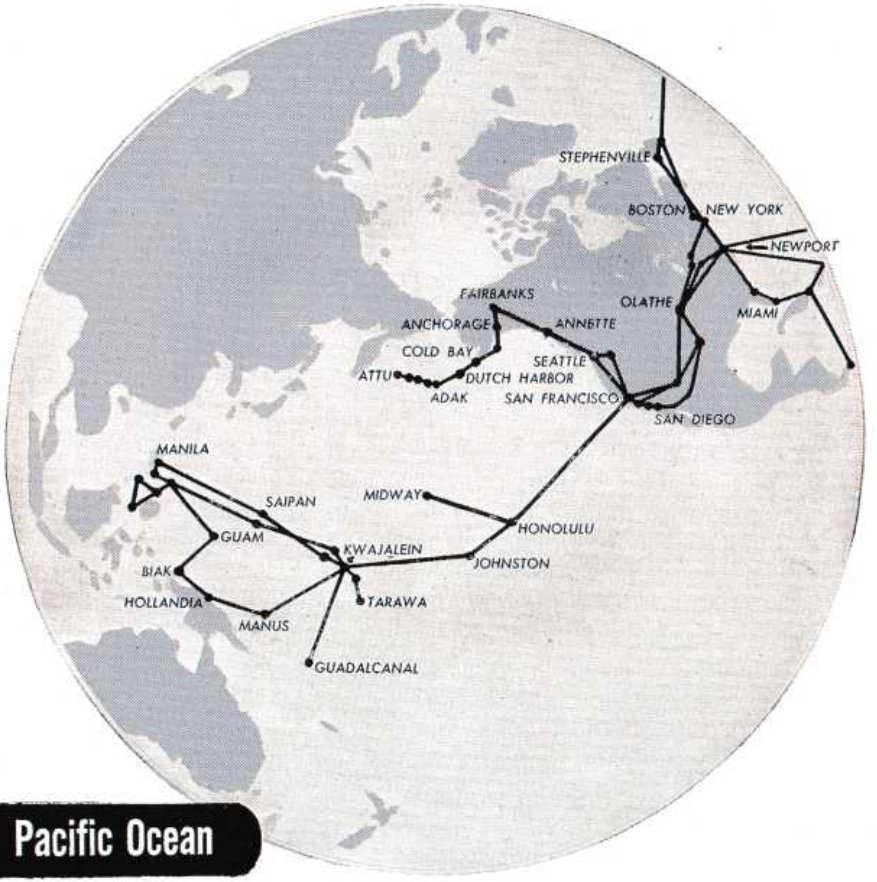


Land Hemisphere

Azimuthal equidistant projection centered at 48° N, 0° longitude

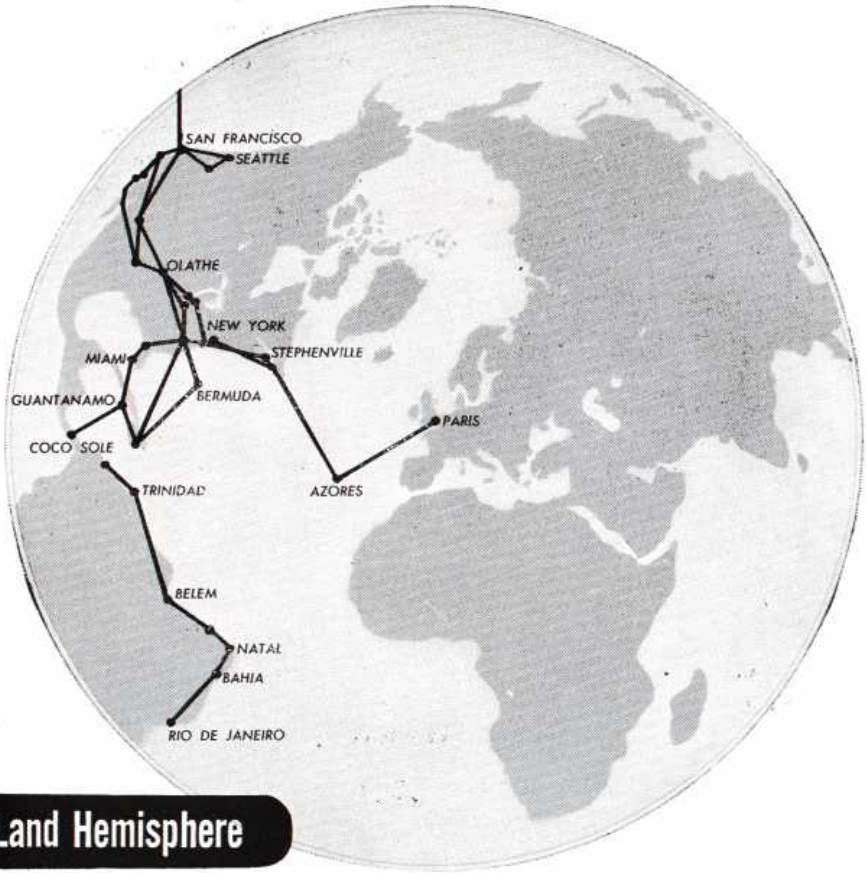
NAVAL AIR TRANSPORT

Network of 80,000 airway miles in May 1945



Azimuthal equidistant projection centered at 40° N, 175° W

SERVICE ROUTES



Azimuthal equidistant projection centered at 48° N, 0° longitude

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Airmen envision at least five lanes across the Atlantic which we may call: (1) the Viking route, via Labrador, Greenland, and Iceland to Scandinavia; (2) the Iceberg route, via Newfoundland, Eire, and England; (3) the Sunshine route, via Bermuda, the Azores, and Portugal; (4) the Equatorial route, via Bermuda, the Azores, and West Africa; and (5) the Latino route, via Brazil and West Africa.

Only the Iceberg route and the Sunshine route operated before the war. The Viking route and the Latino route were added during the war. The Equatorial route is projected.

New ways to span the broad Pacific lie ahead. Lines may regularly run from the United States to Australia. They will reach the Netherlands East Indies from the Philippine Islands and reach Japan from Guam.

"North to the Orient" is the quickest way to reach Asia from the United States, although the ordinary map would not lead us to think so. So routes are planned to Batavia via Alaska, the Aleutians, Siberia's Kamchatka Peninsula, Japan, and the Philippines, and via Alaska, Siberia, Manchuria, and Singapore, or the Philippines.

From San Francisco to Batavia by way of Hawaii is 9,830 miles. By way of the Aleutian Islands and Tokyo, believe it or not, it is only 9,375 miles.

Regularly operated airways apparently will enclose the globe. The maps of the future show routes from the United States to Calcutta by way of the Pacific and routes from the United States to Calcutta by way of the Mediterranean Sea.

More countries in the airways

Far more countries will operate international lines than did before the war. And those who operated them previously will extend the scope of their undertakings.

Sweden, the Netherlands, Belgium, France, and perhaps others propose to inaugurate service across the Atlantic to North America over routes already operated by the United States and Britain.

Netherlands and British Commonwealth airlines propose to link Asia with North America via the Pacific. The Union of South Africa will be readily available to air travelers from the United States. United States airlines are seeking approval for the opening of new routes to Latin America. New services will link Europe with South America.

Within Europe there is certain to be a rearrangement of operations, for the victorious powers are not inclined to permit Germany or Italy to start again the airlines they were maintaining before the war.

In time planes may possibly fly over the North Polar region in joining the Old and New Worlds. Russian airmen twice made this hop in 1937. It is 11,900 miles from New York to Chungking by way of San Francisco and the Pacific. It is only 7,600 miles by way of the North Pole. But the long polar hop may be unprofitable, and although wartime flying across Greenland and over Alaska into Siberia has taught many lessons about northern weather, the technological problems raised by polar aviation are far from solved.

The Chicago aviation conference

Most of the United Nations agreed in 1944 to try to get rid of the fears and restrictions that had held back international aviation before the war. They sent representatives to a conference in Chicago arranged by the United States government. The purpose of the conference was to find a satisfactory way to settle the problems arising from divided "ownership" of the air.

One allied country, Russia, decided at the last moment not to send a delegate to the conference. Before the war Russia was operating almost 60,000 miles of airways within its own vast reaches, but it had few international links. A Swedish line connected Moscow with Stockholm, a Russian-German joint line connected Moscow with Berlin, a Russian line connected Moscow with Sofia, Bulgaria, and a Russian-Chinese line connected Siberia with northwestern China.

According to Juan Trippe, the president of Pan American World Airways, the Russian government in 1935 granted him permission to run an experimental line from Alaska into Siberian territory, although his company never went ahead with the operation.

Familiar fears

For those countries represented at Chicago, the old economic fear was still alive. The various countries represented were all determined to overcome this fear, but different countries proposed different methods of doing away with it.

The economic fear had two facets:

First, fear that one or two countries might have so many airplanes and be able to build and operate so many more that they could get a monopoly of the air transport business almost from the word "go."

Second, even if planes were divided up pretty evenly, the fear existed that the business available for international and intercontinental air transport—in terms of passengers, freight, express, and mail—would not be great enough to fill all the planes that all the countries might want to put into the air

Ordinary commercial planes transported paratroops.



and that therefore the strongest country might soon drive the rest out of business if there were open competition.

The old concern for security was also noticeable at the Chicago conference. The war in whose midst the delegates met was marked by the use of ordinary commercial planes to transport paratroopers behind enemy lines. This fact left many of the governments with a deep conviction that peacetime and wartime aviation are inextricably mixed.

Two governments so convinced were those of Australia and New Zealand. Their delegations proposed an all-embracing international company that would own and operate the international air services of the world. This proposal, unacceptable to the conference, was put forward in an attempt to cope with the security problem.

The supporters of this proposal said that the internationalization of aircraft would render it difficult for nations to prepare to use peacetime planes for war purposes. The opponents feared internationalization more than they feared attack from the air.

Conference disagreements

These economic and security apprehensions are serious and sincere. The economic considerations inspired the suggestion made at the Chicago conference by the British delegation that after the war international air transport should be strictly controlled by an international bureau which would have the authority to fix rates, allocate traffic quotas, and assign routes to the various countries.

The United States delegation, on the other hand, argued in favor of more wide-open competition, at least during the immediate postwar period, with an arrangement for later consideration of the problem of dividing up the traffic justly among the interested countries. It proposed establishment of an international body whose chief power would be to deal with questions of standardizing equipment and other technological matters.

WILL POSTWAR FLYING BE QUICK AND CHEAP?

ALMOST ALONE among the allies, the United States continued to construct transport planes during the war. Therein lies this country's prime advantage in any peacetime race for routes and traffic.

To indicate to the rest of the world that we do not intend to exploit this advantage unfairly, the United States government announced to the Chicago conference that when the war ended America would supply other countries with planes from its military surplus.

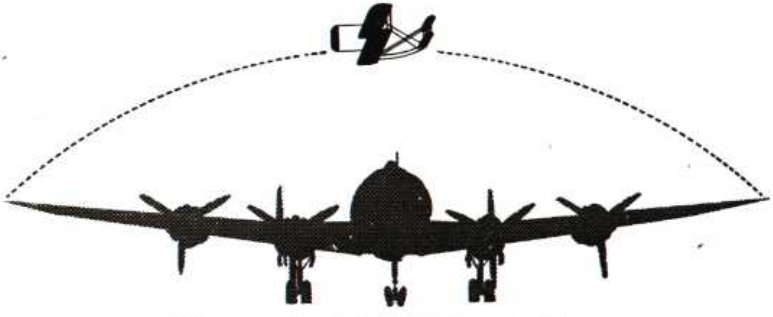
During the war the United States—and to a lesser degree, Britain—developed planes not only for wartime but for postwar needs.

The planes designed for international transport after the war will be far superior to those used before the war. Most of them are on view and many made history with their daily runs on ATC and NATS routes.

Most of these planes have four motors, and each motor has 2,000 or 2,200 horsepower—the De Haviland plane that inaugurated international transport in 1919, between London and Paris, had one motor of 345 horsepower.

Whereas the Pan American Clipper of prewar days traveled 165 miles an hour crossing the ocean, these modern planes

Wright's first flight—about 120 feet



Wingspread of Constellation—123 feet

are far more speedy. In the spring of 1944 a Lockheed Constellation—whose wing span of 123 feet is greater than the distance the Wright brothers flew in their first flight in a plane—flew from Burbank, California, to Washington, D. C., 2,400 miles, in 6 hours, 57 minutes, and 51 seconds, an average of 330 miles an hour.

A few months later another new sky giant, the Boeing Stratocruiser, transport brother of the B-29 bomber, flew from Seattle to Washington in slightly less time—6 hours, 3 minutes, and 50 seconds, averaging 383 miles an hour. The best fighter plane America had on Pearl Harbor Day wasn't that fast.

We are betting on these

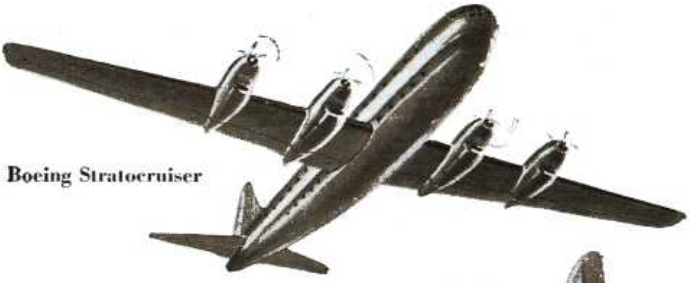
The United States has developed both land planes and flying boats. Before the war the flying boat was the usual craft used for crossing the ocean. But today land planes regularly make long over-water hops.

The outstanding flying boat developed in the United States during the war is the Martin Mars, a flying warehouse that weighs 70 tons. It has a range of 7,500 miles—enough to cross the Pacific in one hop.

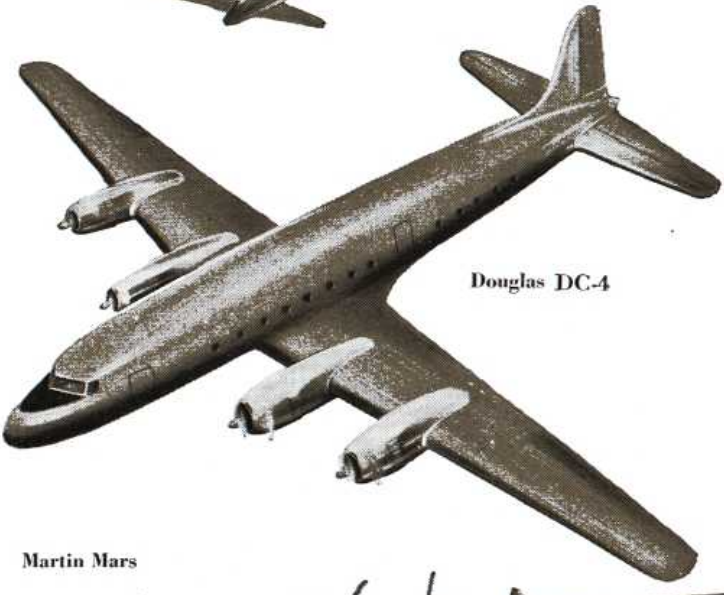
But it is the land plane to which the United States has devoted most attention. Before the war, the standard transport plane within the United States and in many countries abroad was the two-engined DC-3 made by Douglas Aircraft Company.

During the war this plane's big brother went into service—the DC-4, or the C-54 as the Army knows it. It can carry 44 passengers. The manufacturer is improving the model that the Army has been using so that it will be more efficient. A still bigger brother is the 50-passenger DC-6.

The Constellation is a 60-passenger plane with a lower operating cost than the DC-6. Another four-motored transport the Army has been using is the C-87, a noncombat twin



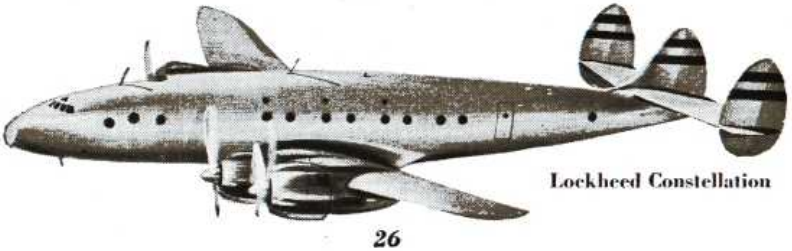
Boeing Stratocruiser



Douglas DC-4

Martin Mars





Lockheed Constellation

of the Liberator bomber. But its operating cost is so high that it will probably not be flown commercially now that the war is over.

The Mars, the DC-6, the Constellation, and the Stratocruiser are the "big four" planes with which the United States faces the future.

Britain's contenders

Britain announced the design of seven new transports during the war, but constructed only one of the seven.

British energies in plane construction were primarily devoted to combat needs, to the mighty bombers like the Lancaster and such fierce fighters as the Spitfire, Hurricane, and Typhoon.

Outstanding among the British commercial designs for the future are these:

The Brabazon—100 tons, 250 miles an hour, capacity for 50 passengers and two tons of mail.

The Tudor—32 tons, 220 miles an hour, capacity for 12 passengers, pressurized cabin, for transatlantic service.

The Avro York—four-engined (1,260 horsepower each), 230 miles an hour, 50 passengers, 3,000-mile range. This brother of the Lancaster bomber is in production and is flying the North Atlantic.

Are there too many planes on hand now?

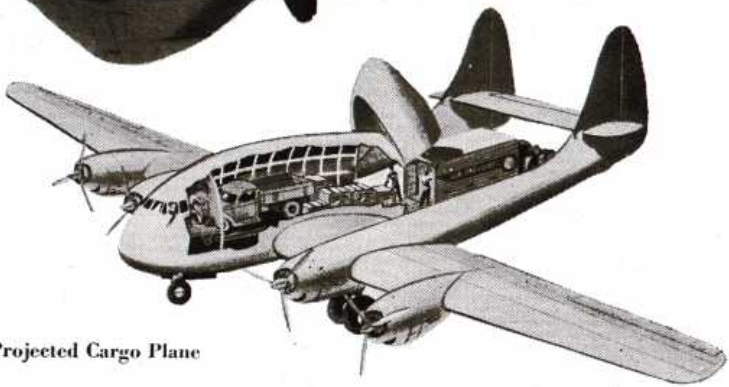
An important question whose answer throws some light on the future of air transport is how many planes all the world's lines will need for peacetime operation.

They got along on relatively few before the war. United States domestic airlines were using only 371 transports when war came and our international lines, 82. But in 1944 one U. S. line, United, ordered 50 four-motored planes (15 DC-4's and 35 DC-6's) for later delivery and another line, Eastern, ordered 14 Constellations.

Sales of surplus American military transports to foreign



Flying Wing

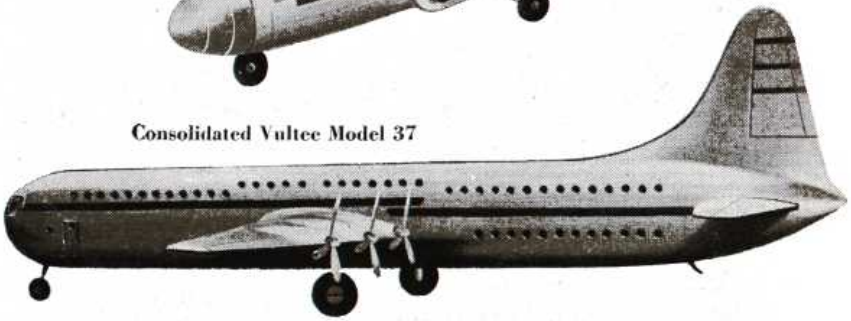


Projected Cargo Plane

Projected Helicopter
"Air Bus Model"



Consolidated Vultee Model 37



buyers began late in 1944. A subcommittee of the Military Affairs Committee of the House of Representatives has estimated that there will be a world demand for a good deal of the military surplus—for 100 C-54's and for from 280 to 1,975 of the Army's two-engined transports, the C-47, C-53, C-46 (Curtiss-Wright Commando), and C-93 (Budd cargo plane).

Lord Beaverbrook, formerly in charge of coordinating British postwar civil air transport policy, passed on an estimate that the world would be using some 15,000 planes after the war.

The war has brought the use of jet-propulsion in combat planes, and this revolutionary principle, adding to speed, will be applied to civil planes. So will rocket starting, which enables planes to get into the air after a relatively short run on the ground and with far heavier loads than planes could lift without rockets.

How many paying passengers?

Interesting as the modern planes are, they will be common sights in the skies over the Atlantic and Pacific, above the jungles of Africa and the deserts of Asia only if there is enough business to keep them running.

Planes are natural carriers into regions which neither ships on the sea nor trains nor automotive transport can reach from the outside world. This explains the success of airways in Latin America, interior Africa, and northern Siberia, where farmers who never saw a train are quite used to the giants of the sky.

They are naturals, too, for those passengers who have to make a long journey swiftly, say from New York to Rio de Janeiro, New York to London, or San Francisco to the Far East, and who can hang the cost. And they are naturals for transporting cargoes of great value which take small space, like diamonds, or which are perishable, like expensive tropical flowers.

Planes have become common carriers of the mail. Between parts of the British Empire, all mail was carried by plane before the war wherever a route existed that made it possible.

Will airplanes attract enough passengers and enough freight to make intercontinental plane travel as common as steamship travel? Some students of the problem think that, in time, they might attract more travelers than the steamships. Certainly they will make future travelers of many present stay-at-homes.

How much must they pay?

So far as passengers are concerned, the matter of fares will have a good deal to do with their desire to travel by plane. Several years ago the United States Maritime Commission expressed the view that transatlantic planes would supersede the great luxury liners. But first-class tickets on those liners were in a price class with prewar tickets on transoceanic planes.

During the war ATC carried priority civilian passengers on important missions for twelve cents a mile. That is about $360 from New York to Eire. Train fares average around three cents a mile. Late in 1945 Pan American World Airways dropped its New York–Eire fare from $525 to $275, but then had to raise it again to $375. The original fare charged on this flight in 1939 was $337, and Pan American has forecast a fare of $137 if it gets projected equipment and Civil Aeronautics Board approval of all pending applications.

A number of airlines have announced low peacetime fares they hope to be able to charge if costs, traffic, and other considerations permit. Pan American hopes to cut its New York-Rio fare from $419 to a future $175. TWA looks forward to a possible charge of $193.50 between New York and London. Pennsylvania-Central hopes to carry passengers from New York to Paris for $186 and New York to Calcutta for $490.

How much freight?

The factor of cargo also governs air economics. The Army's

C-82 cargo transport can carry a light tank. Will cargo planes attract freight this heavy in the years of peace?

Many heavy cargoes are not in a hurry to get from one place to another, and steamships have been making money for years because they can haul at low rates.

The total weight of air express carried by United States domestic lines in the twelve months of 1939 came to 2,700,000 ton-miles. ATC hauled 15,000,000 ton-miles a month.

Are the prospects good or bad?

We cannot predict the future. But we can make estimates about it, and a number of students have looked closely into the prospects for peacetime passenger travel and cargo hauling intercontinentally. This is what they foresee on the conservative assumption that rates remain high:

Two hundred and fifty passengers a day may fly in each direction over the Atlantic between Europe and North America, or slightly more than enough to fill four Constellations. A third as many passengers may be traveling between North America and South America, and a fourth as many may travel across the Pacific. Planes filled to 65 percent of passenger capacity can operate efficiently.

Freight tonnage by air from the United States to northern Europe may average 10,000 tons a year; to the Mediterranean, 5,000 tons; to Australia, 1,500 tons; to the Far East, 4,000 tons; to South America, 3,000 tons; and to the Caribbean area, 6,000 tons.

Those cargo figures represent an increase of ten times the prewar carriage of cargo between the United States and foreign destinations.

More optimistic commentators foresee a greater traffic, both passenger and cargo. Assuming that fares can be reduced to the neighborhood of three cents per mile, they estimate that as many as 4 million Americans may travel abroad by air every year.

Other observers, pessimistically inclined, envision a lesser traffic than even the first figures above.

WHAT ARE THE "FIVE FREEDOMS" OF AIR TRANSPORT?

THE PROSPECT for only limited travel helps to explain the economic apprehensions that were expressed at the Chicago conference.

In an effort to eliminate restrictions, this conference proposed to open the air to the traffic of all by declaring "five freedoms"—or more properly, five privileges.

The privileges were set forth in two agreements—the first agreement containing privileges 1 and 2 (the International Air Services Transit Agreement) and the other agreement containing all five privileges (the International Air Transport Agreement).

The agreements propose that for scheduled international air services each nation grant to all others, with the possible exception of former enemy countries, these "freedoms":

1. To fly across its territory without landing.
2. To land for nontraffic purposes.
3. To put down passengers, mail, and cargo taken on in the territory of the country whose nationality the aircraft possesses.
4. To take on passengers, mail, and cargo destined for the territory of the country whose nationality the aircraft possesses.
5. To take on passengers, mail, and cargo destined for the territory of another agreeing nation and to put down passengers, mail, and cargo coming from any such territory.

What do they mean?

Freedoms 3, 4, and 5 are essentially commercial privileges that encourage economic enterprise in the air. Freedoms 1 and 2

attack the political hazards that help keep the skies from opening wide.

The ready reception which the delegates to the conference gave to the first privilege indicated that the military fear is subsiding. With the first freedom in force, any plane on a regularly scheduled run can cross any nation's territory on designated routes without other preliminary agreement.

The second freedom means that, with certain limitations, the bases controlled by one country are open to the planes of any other agreeing country. Thus the United States can no longer close the Pacific by denying foreign lines the use of Hawaii if the other nation involved has accepted the second freedom with respect to American planes desiring to land in its territories. And Britain can no longer deny the use of Newfoundland or Bermuda to the lines of other nations accepting the second freedom.

The third, fourth, and fifth freedoms, insofar as they are now in force, make it economically useful to send planes from one country to another since they can thus pick up, carry, and discharge passengers and cargo en route both ways.

Without the fifth freedom a plane going, say, from New York to Calcutta would be unable along the way to pick up new passengers when others not making the whole trip got off. Under prewar conditions this was not always possible—with the result that it was not profitable to operate long international routes without the help of heavy governmental subsidies.

Results of the Chicago conference

A. A. Berle, Jr., chief of the American delegation to the Chicago air conference, said that the meeting advanced international aviation by two decades. That it made very considerable forward strides is undeniable. Probably the most important is the Provisional International Civil Aviation Organization which has been operating at Montreal since

August 1945. This was provided for in an interim agreement reached at Chicago and is intended to be replaced by a permanent setup that will, among other things, be a clearinghouse for international civil aviation matters.

Mention should also be made of the technical agreements reached at Chicago covering a dozen operational and regulatory matters—from uniform rules of the air and traffic control to licensing, registration, and customs procedures.

Eventually the system of international agreements worked out at Chicago should eliminate need for the old country-to-country negotiations that preceded every previous extension of international flying. But to ease the path in the meantime for arrangements covering point-to-point international transport, the conference recommended a standard form of agreement. This is intended for the use of countries making bilateral—one country with another—arrangements within the terms of the third and fourth freedoms. From the Chicago conference to December 31, 1945, the United States reached such agreements with Spain, Sweden, Denmark, Iceland, Eire, Canada, Switzerland, Norway, and Portugal.

The Chicago conference marks a long step forward in man's cautious progress toward full use of the airplane. To the question of who owns the air, it gave the same answer as the Paris conference of 1919: Each state "owns" the air above its territory for an infinite distance into space.

But if we ask, "How free is the air?" and then examine the two-freedoms and five-freedoms agreements, we can say, "Much freer than it used to be." By December 31, 1945 forty-six nations had signed the two-freedoms document and it was in force with respect to 25 of them. The five-freedoms agreement had been signed for 28 nations and was in force for 12.

Issues that remain

The dispute whether there should be strict international traffic quota control in time of peace still goes on. The

problem turns on these four questions:

Will there be enough traffic for all the international airlines?

Even if there is not, should not international aviation be governed by the principle of regulated competition?

But would this competition tend in time to give a monopoly of business to the operator who started with better facilities than his competitors?

And would such an advantage, especially in what will be the richest field of international air transport—across the Atlantic between Europe and North America—lead to jealousies that would injure international cooperation in shipping, telecommunications, and the like?

TO THE DISCUSSION LEADER

COOPERATION against danger, not competition for prestige and economic advantage, guided United Nations air transport policy during the war. Economic and political obstacles were brushed aside. Amazing technical progress was the result, and thousands of men in the services observed it at firsthand.

The postwar use of the skyways is another matter. Critical questions must be answered. In these questions lie the major issues for your discussion:

How far will economic and political obstacles hinder peacetime international airlines?

How can these obstacles be removed or minimized?

Has something already been done to eliminate some of them?

Can large planes be operated safely enough and cheaply enough to compete successfully with steamship travel?

Should international aviation be governed by the principle of open competition?

If you raise these issues and add some of those suggested below, under "Questions for Discussion," you will have much more material than you can cover in one meeting. Your task is to select perhaps the first three issues or the last two as points to discuss at one meeting. Or you might plan two or three meetings if your group wishes to talk out completely the subject of international air transport.

The text of this pamphlet does not contain the answers to the questions that have been raised. It does, however, explain what the economic and political obstacles are; it describes the proposals made at the Chicago conference to minimize the obstacles; and it summarizes concisely the known facts about the kinds of planes which will be used in intercontinental flying and about estimated costs of operating such planes. So you have the raw material for discussion. For the present at least, each man will have to work out the answers for himself.

Aids to discussion

Use the maps. If you put rough copies of them up on the wall, you will find them of invaluable assistance whether you conduct a forum or an informal discussion.

List the important problems you wish to keep before your group all through the meeting. Two lists are suggested. They may be written on a blackboard or a large sheet of paper. It is suggested that one chart contain the three "hazards"—mentioned on page 2. The other could list the five privileges or so-called "five freedoms" found on page 32.

The techniques of organizing and conducting discussions and forums are described in EM 1, *GI Roundtable: Guide for Discussion Leaders,* which every leader should have. Leaders who are especially interested in conducting roundtable discussion or forum programs over radio stations or sound systems of the Armed Forces Radio Service should also read EM 90, *GI Radio Roundtable.*

Make copies of this pamphlet available for advance reading in some central place—library, dayroom, service club, or other accessible spot. Informed members in your group will improve the quality of your meeting.

Questions for discussion

The questions that follow are intended to help you organize your discussion. If you have better ideas, don't hesitate to use them.

1

Which do you think are the greatest obstacles to full commercial use of postwar skyways—the technological, economic, or political obstacles?

2

Since freedom of the seas means that ships of every nation can sail the oceans without asking permission of any other nation, does free and unrestricted use of the air mean the same principle applied to the air?

3

If nations have feared that the regularly scheduled commercial planes of other countries might be used for concealed military purposes, why have they left noncommercial international flying almost unregulated?

4

Will it ever be wholly impossible to use civil planes for military purposes and vice versa? What are the advantages a nation is supposed to gain from having a large and active aviation program? Are they peacetime or wartime advantages? How important is the "prestige" accruing to a nation because it has a far-flung system of air routes?

5

If there were to be free and open competition in international air transport, is it likely that one nation might soon drive the rest out of business? Would such a development threaten world peace?

6

Should each country allow only one line, a "chosen instrument," to enter the field of international competition? Should this be a private company, a government monopoly, or a joint operation of domestic lines, or what? If drastic competition between lines of several nations for, say, the North Atlantic passenger traffic means profits for none, should a pooling or price-fixing arrangement be permitted? Should international air rates be regulated? By whom? Are most nations or only a few likely to try to develop large-scale international airlines? Why do you think so?

7

Since ocean steamers can freely pick up and discharge passengers and freight in any port of any country, except for coastwise traffic (cabotage), why has a different rule been applied to planes?

8

Will passenger travel by intercontinental plane be as common as steamship travel? How can costs be reduced? Can planes compete with ships in carrying freight? Will increased trade and travel between countries make them closer friends or give rise to more frictions?

9

Which of the transport planes developed for immediate postwar use do you think will be successful from a business standpoint? Will flying boats be more practical than land planes on long overwater hops? Do you believe the prophecy that within ten years after the war the majority of commercial planes will be jet-propelled? Is the Beaverbrook estimate that the world will need 15,000 planes after the war sound? If true, what nations do you think will operate them?

10

Do you think the Chicago conference produced important results? What are the most recent developments on international aviation agreements?

11

Should Germany, Italy, and Japan be allowed to engage again in civil aviation? In international commercial air transport?

FOR FURTHER READING

THESE BOOKS are suggested for supplementary reading if you have access to them or wish to purchase them from the publishers. They are not approved nor officially supplied by the War Department. They have been selected because they give additional information and represent different points of view.

CIVIL AVIATION AND PEACE. By J. Parker Van Zandt. Published by Brookings Institution, 722 Jackson Place, N. W., Washington 6, D. C. (1944). $1.00.

NEW WORLD HORIZONS: GEOGRAPHY FOR THE AIR AGE. By Chester H. Lawrence. Published by Duell, Sloan and Pearce, 270 Madison Ave., New York 16, N. Y. (1942). $2.75.

INTERNATIONAL AIR TRANSPORT AND NATIONAL POLICY. By Oliver J. Lissitzyn. Published by Council on Foreign Relations, 45 E. 65th St., New York, N. Y. (1942). $5.00.

WINGS AFTER WAR; THE PROSPECTS OF POSTWAR AVIATION. By S. Paul Johnston. Published by Duell, Sloan and Pearce (1944). $2.00.

INTERNATIONAL AIR TRANSPORT. By Sir Harry Osborne Mance. Published by Oxford University Press, 114 Fifth Ave., New York 11, N. Y. (1944). $1.00.

EMPIRE OF THE AIR. By Matthew Josephson. Published by Harcourt, Brace and Co., 383 Madison Ave., New York 17, N. Y. (1944). $3.00.

INTERNATIONAL CONTROL OF AVIATION. By Kenneth W. Colegrove. Published by World Peace Foundation, 40 Mt. Vernon St., Boston 8, Mass. (1930). $2.50.

OTHER GI ROUNDTABLE SUBJECTS

INTRODUCTORY COPIES of each new *GI Roundtable* pamphlet are automatically issued to information-education officers in the United States and oversea areas. Additional copies are authorized on the basis of one copy for each 25 military personnel. Pamphlets may be requisitioned from the United States Armed Forces Institute, Madison 3, Wisconsin, or from the nearest USAFI Oversea Branch. List EM number, title, and quantity. New subjects will be announced as published. *GI Roundtable* subjects now available:

EM 1, GUIDE FOR DISCUSSION LEADERS
EM 2, WHAT IS PROPAGANDA?
EM 10, WHAT SHALL BE DONE ABOUT GERMANY AFTER THE WAR?
EM 11, WHAT SHALL BE DONE WITH THE WAR CRIMINALS?
EM 12, CAN WE PREVENT FUTURE WARS?
EM 13, HOW SHALL LEND-LEASE ACCOUNTS BE SETTLED?
EM 14, IS THE GOOD NEIGHBOR POLICY A SUCCESS?
EM 15, WHAT SHALL BE DONE ABOUT JAPAN AFTER VICTORY?
EM 20, WHAT HAS ALASKA TO OFFER POSTWAR PIONEERS?
EM 22, WILL THERE BE WORK FOR ALL?
EM 23, WHY CO-OPS? WHAT ARE THEY? HOW DO THEY WORK?
EM 24, WHAT LIES AHEAD FOR THE PHILIPPINES?
EM 27, WHAT IS THE FUTURE OF TELEVISION?
EM 30, CAN WAR MARRIAGES BE MADE TO WORK?*
EM 31, DO YOU WANT YOUR WIFE TO WORK AFTER THE WAR?
EM 32, SHALL I BUILD A HOUSE AFTER THE WAR?
EM 33, WHAT WILL YOUR TOWN BE LIKE?
EM 34, SHALL I GO BACK TO SCHOOL?
EM 35, SHALL I TAKE UP FARMING?
EM 36, DOES IT PAY TO BORROW?
EM 37, WILL THERE BE A PLANE IN EVERY GARAGE?
EM 40, WILL THE FRENCH REPUBLIC LIVE AGAIN?
EM 41, OUR BRITISH ALLY
EM 42, OUR CHINESE ALLY
EM 43, THE BALKANS—MANY PEOPLES, MANY PROBLEMS
EM 44, AUSTRALIA: OUR NEIGHBOR "DOWN UNDER"
EM 45, WHAT FUTURE FOR THE ISLANDS OF THE PACIFIC?
EM 46, OUR RUSSIAN ALLY
EM 90, GI RADIO ROUNDTABLE

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